RESEARCH DEPARTMENT

# New transmitting aerial for the Folkestone television station

REPORT No. E-094
1963/65

THE BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION

RESEARCH DEPARTMENT

# NEW TRANSMITTING AERIAL FOR THE FOLKESTONE TELEVISION STATION

Report No. E-094
(1963/65)

W Proctor Wilson

(W. Proctor Wilson)

D.W. Osborne, A.M.I.E.E.

This Report is the property of the British Broadcasting Corporation and may not be reproduced in any form without the written permission of the Corporation.

December 1963

Report No. E-094

(1963/65)

# NEW TRANSMITTING AERIAL FOR THE FOLKESTONE TELEVISION STATION

## INTRODUCTION

Changes to the installation to increase the effective radiated power (e.r.p.) were made, with effect from 1st August 1963, in order to give an overall improvement to reception in the original service area and also to extend the cover to Hythe.

## SUMMARY OF INSTALLATION

Site: The site is at Creteway Down about 1·5 miles (2·4 km) north of Folkestone town centre, grid ref: TR/228382, height 520 ft (159 m) a.m.s.l.

Support Structure: The support structure consists of a 120 ft (37 m) stayed pole, diameter 4·5 in (11·5 cm).

General Arrangement: See Fig. 1.

Channel: Channel 4, with horizontal polarization, is used. The vision carrier is offset -6·75 kc/s and the sound carrier +31·5 kc/s.

Aerial: The aerial consists of four tiers each of one horizontal dipole oriented to give maximum radiation at 230° ETN. The dipoles are bent so that one limb is directed along a bearing of 155° ETN and the other along bearing 305° (i.e. the included angle between the limbs is 150°). There are separate main feeders (PT29LM cable) to each two-tier half-aerial. The inter-tier spacing is 0·8λ and the mean height 94 ft (29 m) a.g.l.

Power: A 10 W translator with a reduced output power of 5·8 W is used.

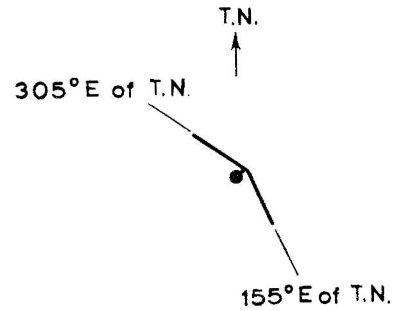
Templet and Horizontal Radiation Pattern (h.r.p.): See Fig. 2 and Note.

| | | | | |
|---|---|---|---|---|
| Gain: | Mean intrinsic gain | | | 5·6 dB |
| | Deduct: | losses due to possible misalignment and distribution feeders | | 0·2 dB |
| | Mean net gain | | | 5·4 dB |
| | Deduct: | loss in main feeder (type PT29) | 0·7 dB | |
| | | network loss | 0·3 dB | 1·0 dB |
| | Mean effective gain | | | 4·4 dB |

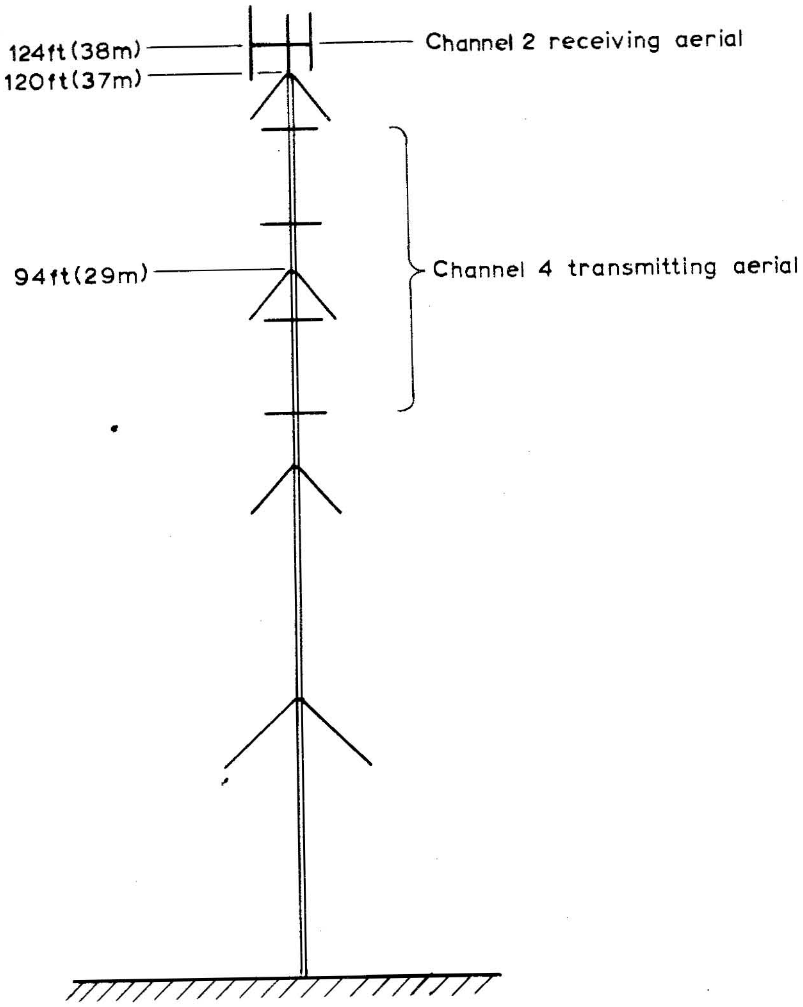
Programme Link: The programme is obtained by direct reception of the Channel 2 (vertical polarization) transmission from the Dover station. The receiving aerial consists of a double 3-element Yagi oriented on a bearing of 68° E of T.N.

Note: The aerial is of a simple type for which the h.r.p. may be calculated accurately. The object of bending the dipole limbs is to produce a small amount of radiation in a direction at right-angles to that of maximum e.r.p.

ALG



Plan of transmitting aerial



Elevation

Fig.1 General arrangement of aerials on mast

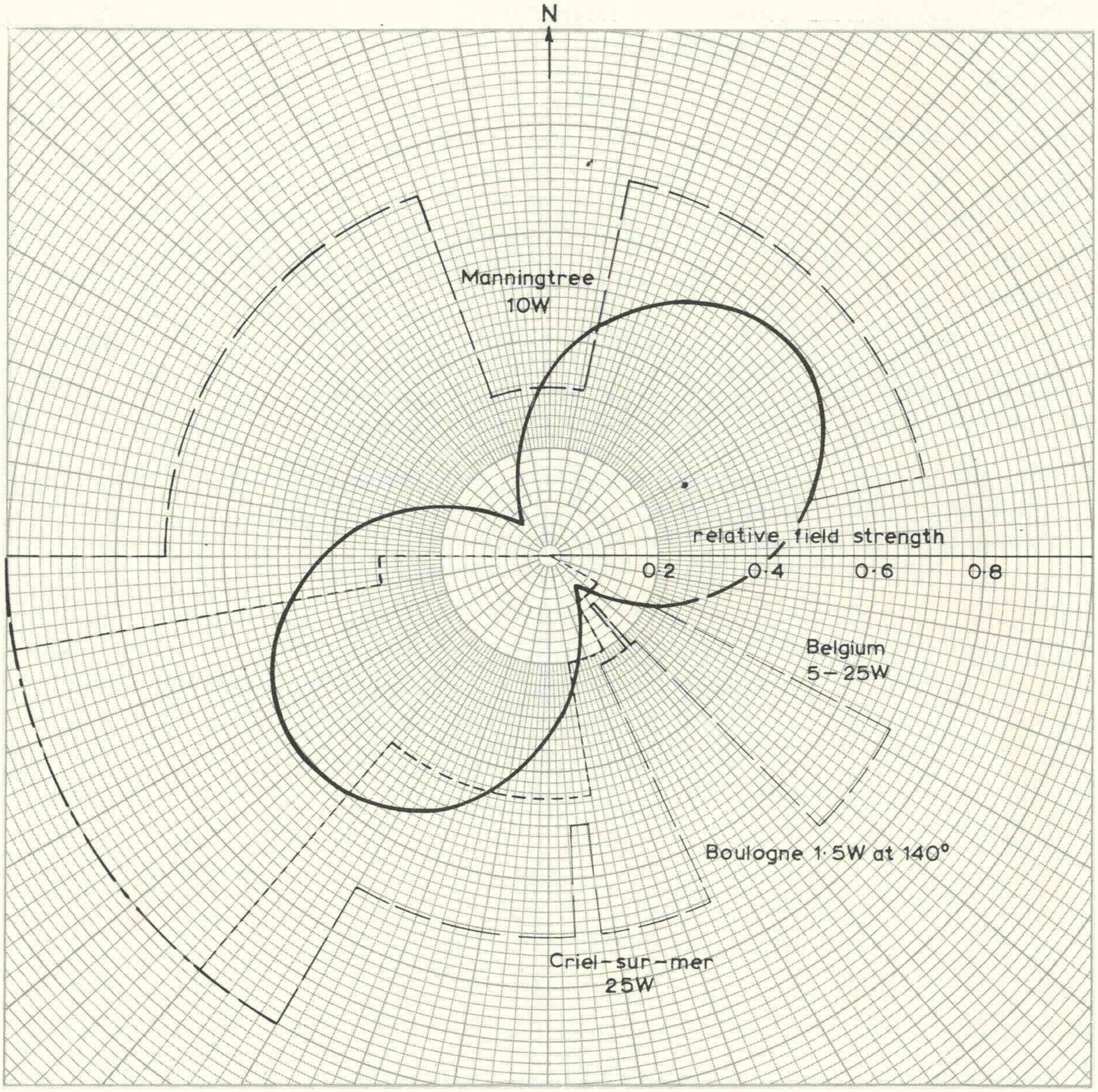


**Fig. 2 , Templet and horizontal radiation pattern**

HORIZONTAL POLARIZATION

Channel 4 (Vision carrier 61·75Mc/s Sound carrier 58·25Mc/s)

Mean effective gain 4·4dB — — — Maximum permissible E.R.P.

Transmitter power 5·8W - - - - - - - - - Minimum desirable E.R.P.

Mean E.R.P. 16W

Unit field corresponds to an E.R.P. of 100W